12th STD

INSTANT SUPPLEMENTARY EXAM 2023
COMPUTER APPLICATIONS

Reg. No.

TIME ALLOWED : 3.00 Hours]   PART - III (with Answers)   [MAXIMUM MARKS : 70

Instructions :

1) Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.
2) Use **Blue** or **Black** ink to write and underline and pencil to draw diagrams.

PART - I

Note : (i) Answer **all** the questions.   **(15×1=15)**

(ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

1. RTF File format was introduced by _____.
   (a) TCS   (b) Microsoft
   (c) Apple   (d) IBM

2. Shortcut to close a document in PageMaker is ____.
   (a) Ctrl+A   (b) Ctrl+B
   (c) Ctrl+C   (d) Ctrl+W

3. An entity set that does not have enough attributes to form primary key is known as:
   (a) Strong Entity set (b) Weak Entity set
   (c) Identity set   (d) Owner set

4. A PHP script should start with ___ and end with ____.
   (a) <php>   (b) <?php?>
   (c) <??>   (d) <?php?>

5. In PHP, arrays are of ___ types.
   (a) 1   (b) 2   (c) 3   (d) 4

6. ____ loop is exclusively used for arrays in PHP.
   (a) While   (b) Do While
   (c) for   (d) foreach

7. Which attribute of form tag helps in client side validation?
   (a) Submit   (b) Check
   (c) Validate   (d) Required

8. How many parameters are required for MYSQLi to connect function in PHP?
   (a) 2   (b) 3   (c) 4   (d) 5

9. A set of computers connecting together is called as ____
   (a) Network   (b) Server
   (c) Hub   (d) Node

10. _____ refer to other host computers by using names rather than numbers.
    (a) DNS   (b) TCP
    (c) FTP   (d) SMTP

11. How many bits are used in the IPv6 addresses?
    (a) 32   (b) 64   (c) 128   (d) 16

12. WWW was invented by ___
    (a) Tim Berners Lee   (b) Charles Babbage
    (c) Blaise Pascal   (d) John Napier

13. Which of the following is not correctly matched?
    (a) The first wave of electronic commerce : 1985 - 1990
    (b) The second wave of electronic commerce : 2004 - 2009
    (c) The third wave of electronic commerce : 2010 - present
    (d) Dotcom burst : 2000 - 2002

14. ECS is the expansion of :
    (a) Electronic Clearing Services
    (b) Electronic Cloning Services
    (c) Electronic Clearing Station
    (d) Electronic Cloning Station

15. Secure Electronic Transaction (SET) was developed in :
    (a) 1999   (b) 1996   (c) 1969   (d) 1997

PART - II

Note : Answer **any six** questions. Q.No. 24 is **compulsory**.
(6 × 2 = 12)

16. Define Animation and write its features.

17. What is pasteboard in PageMaker?

18. Define client server architecture.

19. Write syntax of While loop in PHP.

20. List out any four features of mobile network.

21. Define Intranet.

22. What is a resolver?

23. Write the syntax of the 'if else' statement in PHP.

24. Explain BOSS OS.

[**1**]

PART - III

Note : Answer **any six** Questions. Question No. **33** is **compulsory**.   **(6 × 3 = 18)**

25. Discuss on cardinality in DBMS.
26. Write the basic rules for variable declaration in PHP with example.
27. Write the purpose of GET method and POST method.
28. What is meant by artificial intelligence?
29. What are the layers available in TCP/IP reference model?
30. What are the types of Fibre Optic Cables?
31. Explain B2B Module in E-commerce.
32. List the various layers of EDI.
33. Write the output of the following PHP script.

```php
<?php
function welcome()
{
echo "Welcome to PHP programming! "."<br>";
echo "Dear "." students "." <br>";
echo "Give your best in your exams."." <br>";
}
welcome();
?>
```

PART - IV

Note : Answer **all** the questions.   **(5 × 5 = 25)**

34. (a) Explain in detail about process of multimedia.   **(OR)**
    (b) Differentiate digital signature and digital certificates.
35. (a) Write the steps to draw a star using polygon tool.   **(OR)**
    (b) Explain Electronic Account transfer and its types.
36. (a) Explain operators in PHP with examples. **(OR)**
    (b) Explain the multi-dimensional array.
37. (a) Discuss in detail about Switch statement with an example. **(OR)**
    (b) Explain about the development, merits and demerits in Mobile networks.
38. (a) List the basic concepts of ER Model with suitable example. **(OR)**
    (b) Explain the types of Network Cables.

Answers

PART - I

1. (b) Microsoft   2. (d) Ctrl+W
3. (b) Weak Entity set   4. (d) <?php?>

5. (c) 3   6. (d) foreach
7. (d) Required   8. (c) 4
9. (a) Network   10. (a) DNS
11. (c) 128
12. (a) Tim Berners Lee
13. (a) The first wave of electronic commerce : 1985 - 1990
14. (a) Electronic Clearing Services
15. (b) 1996

PART - II

16. Animation is the process of displaying still images so quickly so that they give the impression of continuous movement. In animation the screen object is a vector image.

    Features of Animation :
    (i) In animation the screen object is a vector image.
    (ii) The least frame rate of at least 16 frames per second gives the impression of smoothness and for natural looking it should be at least 25 frames per second.

17. (i)   A document page is displayed within a dark border.
    (ii) The area outside of the dark border is referred to as the pasteboard.
    (iii) Anything that is placed completely in the pasteboard is not visible when the document is printed.
    (iv) The use of pasteboard is to temporarily hold elements while designing document.

18. A server is a computer or a device that provides functionality for other programs or devices, called "clients". This architecture is called the client server model, and a single overall computation is distributed across multiple processes or devices.

19. **Syntax:**

```
while (condition)
{
     //code to be executed;
}
```

20. **Features of Mobile Networks :**
    (i)   Less consumption of power is used by mobile devices compared to a single transmitter or satellite since the cell towers are closer.
    (ii) Huge capacity than a large transmitter, at single frequency can be used for different or many links as long as they are in different in cells.
    (iii) As mobile phones are now heavily used for data communication, the mobile network traffic is fully busy.

21. Intranet is a private network within an enterprise to share company data and computing resources between the employees. It may consist of many interlinked local area networks.

22. (i) The resolver is a program which is responsible for initiating the translation of a domain name into an IP address.

(ii) Since a resolver is stored in the host, There is no need of any protocol to form a connection between the resolver and the user program.

23. Syntax:
```
if (condition)
{
// True-block ;
}
else
{
// False-block ;
}
```

24. BOSS (Bharat Operating System Solutions) Operating System Developed in India by C-DAC (Centre for Development of Advanced Computing) helps to prompt the use of Open Source Software in India. It Supports many India Languges.

PART - III

25. Cardinality is defined as the number of items that must be included in a relationship (i.e) number of entities in one set mapped with the number of entities of another set via the relationship. The three classifications in Cardinality are one-to-one, one-to-many and Many-to-Many.

Cardinality

In the above example we have two entities Person and Vehicle. If we consider a person driving vehicle, then we have one-to-one relationship between Person and Vehicle.

Cardinality Relation 1 to n

In the above example, Customer places the Order is a one-to-many relationship. Here the customer can place multiple orders and the order is related to only one customer.

Cardinality Relation n to n

The example of many-to-many relationship is Students registering the Courses. A student can register more than one courses and A course can be registered by many students. Hence it is many-to-many.

26. Basic Rules for Variable Declaration :
(i) Variable name must always begin with a $ symbol.
(ii) Variable name can never start with a number.
(iii) Variable names are case-sensitive.

27. Post Method: The input data sent to the server with POST method is stored in the request body of the client's HTTP request.

Get Method: The input data sent to the server with POST method via URL address is known as query string. All input data are visible by user after they clicks the submit button.

28. (i) Artificial intelligence will help to maintain, manage, and protect the network problems. Now the networks are monitored by algorithm that enables for anomalous build-ups of traffic and activity which may be the result of nasty activities such as (DDos) Distributed Denialof- Service attacks and attempted hacks.

(ii) Artificial intelligence will be able to predict traffic as it collects and analyzes data in real time.

29. There are four total layers of TCP/IP protocol, each of which is listed below with a brief description.
(i) **Network Access Layer** - concerned with building packets.
(ii) **Internet Layer** - describes how packets are to be delivered.
(iii) **Transport Layer** - ensure the proper transmission of data.
(iv) **Application Layer** - application network processes. These processes include File Transfer Protocol (FTP), Hypertext Transfer Protocol (HTTP), and Simple Mail Transfer Protocol (SMTP).

30. There are two types of fibre optic cables available, One is single-mode and another is Multimode.
(i) Single-mode cables are used for long distance transmission and at a high cost.
(ii) Multimode cables are used for short distance transmission at a very low cost.

31. (i) In B2B E-Commerce, commercial transactions take place between different business organizations, through the Internet.
(ii) For example, a cycle company may buy tyres from another company for their cycles.

   (iii) When compared to other models, the value per transaction in B2B transaction is high, because of bulk purchases.

   (iv) The company also might get the advantage of discounts on bulk purchases.

   (v) Out-sourcing and Off-shoring are generally associated with B2B E-Commerce.

32. Electronic data interchange architecture specifies four different layers namely

   (i) Semantic layer

   (ii) Standards translation layer

   (iii) Transport layer   (iv) Physical layer

33. Output:

Welcome to PHP programming
Dear students
Give your best in your exams

PART - IV

34. (a) Following are the phases for development of complex multimedia projects.

  (1) Conceptual Analysis and Planning :

   (i) The process of multimedia making begins with a conceptual ignition point.

   (ii) Conceptual analysis identifies a appropriate theme, budget and content availability on that selected theme.

   (iii) Additional criteria like copyright issues also are considered in this phase.

  (2) Project design :

   (i) Once the theme is finalized objectives, goals, and activities are drawn for the multimedia project.

   (ii) General statements are termed as goals. The specific statements in the project is known as the objectives.

   (iii) Activities are series of actions performed to implement an objective. These activities contribute to the Project design phase.

  (3) Pre-production :

Based on the planning and design, it is necessary to develop the project.

  (4) Budgeting :

Budgeting for each phases like consultants, hardware, software, travel, communication and publishing is estimated for all the multimedia projects.

  (5) Multimedia Production Team :

   (i) The production team for a high end multimedia project requires a team efforts.

   (ii) The team comprises of members playing various roles and responsibilities like Script writer, Production manager, Editor, Graphics Architect, Multimedia Architect and Web Master.

  (6) Hardware/Software Selection :

   (i) All multimedia Application requires appropriate tools to develop and playback the application.

   (ii) Hardware includes the selection of fastest CPU, RAM and huge monitors, sufficient disc for storing the records.

    (OR)

(b)

Digital signature	Digital certificate
A digital signature is a mechanism that is used to verify that a particular digital document, message or transaction is authentic	A digital certificate is a computer file which officially approves the relation between the holder of the certificate and a particular public key.
Digital signatures are used to verify the trustworthiness of the data being sent	Digital certificates are used to verify the trustworthiness of the sender.
Digital signature is to ensure that a data remain secure from the point it was issued and it was not modified by a third party.	Digital certificate binds a digital signature to an entity
It provides authentication, non-repudiation and integrity	It provides authentication and security.
The document is encrypted at the sending end and decrypted at the receiving end using asymmetric keys.	A digital certificate consist of certificate's owner name and public key, expiration date, a Certificate Authority's name, a Certificate Authority's digital signature

35. (a)   Drawing a star using polygon tool:
To draw a Star

(i)   Click on the Polygon tool from the toolbox. The cursor changes to a crosshair.

(ii)   Click and drag anywhere on the screen. As you drag, a Polygon appears.

(iii)   Release the mouse button when the Polygon is of the desired size.

(iv)   Choose Element → Polygon Settings in the menu bar. Now Polygon Settings dialogue box appears.

(v)   Type 5 in the Number of sides text box.

(vi)   Type 50% in Star inset textbox.

(vii)   Click OK. Now the required star appears on the screen.

(OR)

(b)   With the advent of computers, network technologies and electronic communications a large number of alternative electronic payment systems have emerged. These include ECS (Electronic Clearing Services), EFT (Electronic funds transfers), Real Time Gross Settlement system (RTGS) etc. These Electronic Payment systems are used in lieu of tendering cash in domestic and international transactions.

1.   Electronic Clearing Services (ECS) :

(i)   Electronic Clearing Service can be defined as repeated transfer of funds from one bank account to multiple bank accounts or vice versa using computer and Internet technology.

(ii)   Advantages of this system are bulk payments, guaranteed payments and no need to remember payment dates.

(iii)   ECS can be used for both credit and debit purposes i.e. for making bulk payments or bulk collection of amounts.

2.   Electronic Funds Transfer :

(i)   Electronic Funds Transfer (EFT) is the "electronic transfer" of money over an online network.

(ii)   The amount sent from the sender's bank branch is credited to the receiver's bank branch on the same day in batches.

(iii)   EFT is a widely used method for moving funds from one account to another in B2B business models.

3.   Real Time Gross Settlement :

(i)   Real Time Gross Settlement system (RTGS) is a payment system particularly used for the settlement of transactions between financial institutions, especially banks.

(ii)   As name indicates, RTGS transactions are processed at the realtime.

(iii)   RTGS payments are also called as push payments that are initiated ("triggered") by the payer. RTGS payments are generally large-value payments, i.e. high-volume transactions.

36. (a)   An operator is a symbol that performs a given action on a value or group of values. The values the operation is performed upon are known as operands.

The types of operators in PHP are

• Arithmetic operators

• Assignment operators

• Comparison operators

• Logical operators

• Increment/decrement operators

• String operators

1.   Arithmetic Operators : Arithmetic operators are used to perform math operations, for example, addition, subtraction, multiplication, and division.

Operator	Operator Name	Example	Output
+	Addition	5 + 2	7
-	Subtraction	5 - 2	3
*	Multiplication	5 * 2	10
/	Division	5 / 2	2.5
+	Modulus	5 % 2	1

2.   Assignment Operators : The assignment operator = is used to assign a value to a variable. The assignment operator takes the value of its right-hand operand and assigns it to its left-hand operand.

Operator	Operator Name	Example	Output
=	Assignment Operator	$a = 5;	5

3.   Comparison Operators : Comparison operators are used to compare two values and determine whether a certain condition is true or false.

Operator	Operator Name	Example	Output
>	Greater than	5>2	True
<	Less than	5< 2	False
>=	Greater than or equal to	5>= 2	True
<=	Less than or equal to	5<=2	False
==	Equal to	5 ==5	True
		5 ==5.0	True
===	Identical	5 ===5	True
		5 ===5.0	False
!=	Not equal to	5!=5	False
		5!=6	True
!==	Not identical	5!==5	False
		5!==5.0	True

4. Logical Operators : Logical operators are used to perform logical operations on variables and values.

Operator	Operator Name	Example	Output
&&	Logical AND	(5>3) && (5>7)	False
||	Logical OR	(5>3) || (5>7)	True
xor	XOR	(5>3) xor (5>7)	True
!	Logical NOT	! (5>3)	False

5. Increment / Decrement Operators : In PHP, the increment operator ++ is used to increase the value of a variable by 1, and the decrement operator –– is used to decrease the value of a variable by 1. The increment and decrement operators can be used as either prefix or postfix operators.

Operator	Operator Name	Example
++ (increment operator)	++ $a (Pre-increment)	$x = ++$a
	$a ++ (Post-increment)	$x = $a ++
- - (decrement operator)	-- $a (Pre-decrement)	$x = - - $a
	$a - - (Post-decrementt)	$x = $a - -

6. String Operators :

String operators have concatenation operator(.) and concatenation assignment operator(.=). Concatenation means adding one or more variables to an existing variable.

Operator	Operator Name	Example	Output
. (Dot)	Concatenation	$a = 'Hello'; $b = 'World'; $c = $a . $b;	Hello World
. = (Dot equal to)	Concatenation assignment	$a = 'Hello'; $b = 'World'; $a .= $b;	Hello World

(OR)

(b) In PHP, a multidimensional array is an array that contains one or more arrays as its elements. The elements of a multidimensional array can themselves be arrays, creating an array of arrays, also known as a nested array.

Example 1 :

A multidimensional array that contains one array as its element.

$arr = array(

array(1, 2, 3),

);

echo $arr[0][1]; // Output will be 2.

This array contains one element, which is an array containing three integers. Access the elements of this array using two sets of square brackets, with the first set specifying the row and the second set specifying the column.

Example 2 : A multidimensional array that contains three arrays as its elements.

$arr = array(

array(1, 2, 3),

array(4, 5, 6),

array(7, 8, 9)

);

echo $arr[1][2]; // Output will be 6.

We can access the elements of the array using two sets of square brackets, with the first set specifying the row and the second set specifying the column.

37. (a) Switch Statement:

(i) This is a multiple branching statement where, based on a condition, the control is transferred to one of the many possible points.

(ii) The switch statement is used to specify multiple conditions. It runs a different code block for different conditions.

Syntax

```
switch (expression)
{
case value1:
    //code to be executed if expression = value1;
    break;
case value2:
    //code to be executed if expression = value2;
    break;
...
default:
    //code to be executed if expression is not equal to any of the values;
}
```

Example :

```php
<?php
    $x = 10;
    switch ($x)
    {
        case 5:
            echo "x is equal to 5";
            break;
        case 10:
            echo "x is equal to 10";
            break;
        case 15:
            echo "x is equal to 15";
            break;
        default:
            echo "x is not equal to 5, 10, or 15";
    }
?>
```

Output :

x is equal to 10

(OR)

(b) **Development of Mobile Networks :**

The generations of mobile networks are as follows.

(i) First Generation(1G) 1981- NMT launch

(ii) Second Generation(2G) 1991-GSM Launch

(iii) Second to Third Generation Bridge (2.5)2000 – GPRS launch

(iv) Third Generation(3G) 2003- UK 3G launch

(v) Fourth Generation (4 G) 2007

(vi) Fifth Generation (5G) 2019+

Merits of Mobile Networks :

(i) It provides both voice/data services.

(ii) It connects both fixed and wireless telephone users.

(iii) It is used in areas where cables cannot be laid out due to its wireless nature.

(iv) It is easy to maintain.

(v) It is easy to upgrade the equipments.

(vi) The mobile and fixed subscribers are connected immediately with cellular network as soon as mobile phones are switched on.

(vii) All the handshake signals between mobile and base station are automatically exchanged.

Demerits of Mobile Networks :

(i) Cost

(ii) Vulnerable to Security risks

(iii) Additional training is needed to use new technology.

(iv) Cyber Crime.

38. (a) **ER Modeling basic concepts:** The basic concepts of ER model consists of

1. Entity or Entity type

2. Attributes

3. Relationship

1. Entity or Entity type :

(i) An Entity can be anything a real-world object or animation which is easily identifiable by anyone even by a common man.

(ii) **Eg:** In a company's database Employee, HR, Manager are considered as entities, where each of these entity will be having their own attributes. An entity is represented by a rectangular box.

Employee	Manager

Types of Entity :

(a) Strong Entity

(b) Weak Entity

(c) Entity Instance

2. Attributes:

An attribute is the information about that entity and it will describe, quantify, qualify, classify, and specify and entity. An attribute will always have a single value, that value can be a number or character or string.

Types of attributes :

(i)   Key Attribute

(ii)   Simple Attributes

(iii)   Composite Attributes

(iv)   Single Valued Attribute

(v)   Multi Valued Attribute

3.   Relationship Type:

In ER Model, relationship exists between two entities. Three types of relationships are available and the Entity- Relationship(ER) diagram is based on the three types listed below.

(i)   **One-to-One relationship:** Consider two entities A and B. one-to-one (1:1) relationship is said to exist in a relational database design, if 0 or 1 instance of entity A is associated with 0 or 1 instance of entity B, and 0 or 1 instance of entity B is associated with 0 or 1 instance of entity A.

(ii) **One-to-Many relationship:** Consider two entities A and B. one-to-many (1:N) relationship is said to exist in a relational database design, for 1 instance of entity A there exists 0 or 1 or many instances of entity B, but for 1 instance of entity B there exists 0 or 1 instance of entity A.

(iii) **Many-to-Many relationship:** Consider two entities A and B. many-to-many (M:N) relationship is said to exist in a relational database design, for 1 instance of entity A there exists 0 or 1 or many instances of entity B, and for 1 instance of entity B there exists 0 or 1 or many instance of entity A.

In reality one-to-one are in less usage, where as one-to-many and many-to-many are commonly used. However in relational databases, many-to-many are converted into one-to-many relationships.

(OR)

(b)   There are many types of cables available in the networking.

1.   Coaxial Cables :

(i)   Coaxial cable is used to connect the television sets to home antennas.

(ii) It has a copper wire inside and insulation is covered on the top of the copper wire to provide protection to the cable.

(iii) It is very difficult to install and maintain, because they are too big to carry and replace.

(iv) This cable is used to transfer the information at 10 mbps speed. The cable is classified into thinnet and thicknet cables.

2.   Twisted Pair Cables :

(i)   It is a type of cable with two or more insulated wires twisted together.

(ii) This twisted cable has 8 wires which are twisted to ignore electromagnetic interference.

(iii) There are two types of twisted pair cables, Unshielded Twisted Pair (UTP) and Shielded Twisted pair (STP).

3.   Fiber Optics :

(i)   This cable is made by using strands of glass. It uses pulses of light to send the information.

(ii) They are mainly used in Wide Area Network (WAN). These cables are placed in deep underground to avoid any damage to the cables.

(iii) There are two types of fiber optic cables available, One is single-mode another one is Multimode.

4.   USB Cables :

(i)   The Universal Serial Bus are used to connect keyboard, mouse and other peripheral devices.

(ii) Micro USB is a miniaturized version of the USB used for connecting mobile devices such as smart phones, GPS devices and digital cameras.

(iii) The latest version of USB is USB 3.0 which has the data transfer rate 4.85 Gbps.

5.   Serial and Parallel cables :

(i)   Before Ethernet cable was invented, the Serial and Parallel interface cables were used to connect the system to the Internet.

(ii) They were sometime used for PC to PC networking.

(iii) E.g. RS232 cable. The serial cable send 1 bit at time whereas the parallel port send 8 bit at a time.

6. Ethernet Cables :

(i)   This is a type of twisted pair cable. It is the most common type of network cable mainly used for connecting the computers or devices at home or office.

(ii) This cable connects wired devices within the local area network (LAN) for sharing the resources and accessing Internet.

★★★